

WHAT IS CLAIMED IS:

1. A retractable vehicle step assist, comprising:
 - a rigid frame;
 - a forward planar linkage pivotably connected to said frame along a forward upper connection width;
 - a rearward planar linkage pivotably connected to said frame along a rearward upper connection width; and
 - a rigid step member having a stepping deck, said step member being
 - pivotably connected to said forward planar linkage along a forward lower connection width; and
 - pivotably connected to said rearward planar linkage along a rearward lower connection width and on a side of said forward planar linkage opposite said stepping deck;

wherein said stepping deck is substantially wider than any of said forward upper connection width, said rearward upper connection width, said forward lower connection width, and said rearward lower connection width.
2. The retractable vehicle step assist of Claim 1, further comprising:
 - a rigid stop located within a range of motion of said forward planar linkage;
 - said step assist having a deployed position in which said forward planar linkage rests against said stop and said step member is displaced from said frame, and in which said rearward planar linkage is configured to urge said forward planar linkage against said stop when a load is placed upon said stepping deck.
3. The retractable vehicle step assist of Claim 1, wherein said step assist is moveable between a retracted position in which said stepping deck is tilted upwards, and a deployed position in which said stepping deck is substantially level.
4. The retractable vehicle step assist of Claim 1, wherein said stepping deck is at least 2 times as wide as any of said forward upper connection width, said rearward upper



connection width, said forward lower connection width, and said rearward lower connection width.

5. The retractable vehicle step assist of Claim 1, wherein said stepping deck is about 2-8 times as wide as any of said forward upper connection width, said rearward upper connection width, said forward lower connection width, and said rearward lower connection width..

6. The retractable vehicle step assist of Claim 1, wherein said stepping deck is of sufficient width to provide a step for persons desiring to enter either of two adjacent doors of a vehicle to which the step assist is attached.

7. The retractable vehicle step assist of Claim 6, wherein said stepping deck is at least 2 times as wide as any of said forward upper connection width, said rearward upper connection width, said forward lower connection width, and said rearward lower connection width.

8. The retractable vehicle step assist of Claim 6, wherein said stepping deck is about 2-8 times as wide as any of said forward upper connection width, said rearward upper connection width, said forward lower connection width, and said rearward lower connection width.

9. The retractable vehicle step assist of Claim 1, wherein said forward planar linkage comprises a unitary member having a first end which forms at least two spaced-apart coaxial bearing members which permit pivotable connection of said forward planar linkage to said frame.

10. The retractable vehicle step assist of Claim 9, wherein said at least two coaxial bearing members comprise at least two coaxial bores.

11. The retractable vehicle step assist of Claim 9, wherein said at least two coaxial bearing members comprise at least two coaxial axle portions.

12. The retractable vehicle step assist of Claim 9, wherein said forward planar linkage has a rigid crosspiece connecting said bearing members.

13. The retractable vehicle step assist of Claim 12, wherein said crosspiece is sufficiently strong to prevent substantial deflection of said forward planar linkage from a generally planar configuration when a user steps on said stepping deck.

14. The retractable vehicle step assist of Claim 9, wherein said forward planar linkage further comprises a second end opposite said first end and said second end forms at least two spaced-apart coaxial bearing members which permit pivotable connection of said first arm to said step member.

15. The retractable vehicle step assist of Claim 14, wherein said at least two coaxial bearing members of said second end comprise at least two coaxial bores.

16. The retractable vehicle step assist of Claim 14, wherein said at least two coaxial bearing members of said second end comprise at least two coaxial axle portions.

17. The retractable vehicle step assist of Claim 9, wherein said rearward planar linkage comprises a unitary member having a first end which forms at least two spaced-apart coaxial bearing members which permit pivotable connection of said rearward planar linkage to said frame.

18. The retractable vehicle step assist of Claim 17, wherein said at least two coaxial bearing members of said first end of said rearward planar linkage comprise at least two coaxial bores.

19. The retractable vehicle step assist of Claim 17, wherein said at least two coaxial bearing members of said first end of said rearward planar linkage comprise at least two coaxial axle portions.

20. The retractable vehicle step assist of Claim 17, wherein said rearward planar linkage has a rigid crosspiece connecting said bearing members.

21. The retractable vehicle step assist of Claim 20, wherein said crosspiece is sufficiently strong to prevent substantial deflection of said rearward planar linkage from a planar configuration when a user steps on said stepping deck.

22. The retractable vehicle step assist of Claim 17, wherein said rearward planar linkage further comprises a second end opposite said first end and said second end of said rearward planar linkage forms at least two spaced-apart coaxial bearing members which permit pivotable connection of said rearward planar linkage to said step member.

23. The retractable vehicle step assist of Claim 22, wherein said at least two coaxial bearing members of said second end of said rearward planar linkage comprise at least two coaxial bores.

24. The retractable vehicle step assist of Claim 22, wherein said at least two coaxial bearing members of said second end of said rearward planar linkage comprise at least two coaxial axle portions.

25. The retractable vehicle step assist of Claim 1, wherein said forward planar linkage comprises at least two rigid arms connected to said frame at either end of said forward upper connection width and connected to said step member at either end of said forward lower connection width.

26. The retractable vehicle step assist of Claim 1, wherein said rearward planar linkage comprises at least two rigid arms connected to said frame at either end of said forward upper connection width and connected to said step member at either end of said forward lower connection width.

27. The retractable vehicle step assist of Claim 25, wherein said rearward planar linkage comprises at least two rigid arms connected to said frame at either end of said forward upper connection width and connected to said step member at either end of said forward lower connection width.

28. The retractable vehicle step assist of Claim 1, wherein said step member moves between a retracted position and said deployed position in response to the operation of a remote control.

29. The retractable vehicle step assist of Claim 1, further comprising:

a motor in fixed relation to said frame;

a rotor rotatably connected to said frame and drivingly connected to said motor; and

a drive arm rotatably connected to said frame and coaxial with said rotor, said drive arm being fixed to said rotor so as to rotate in concert therewith;

wherein said drive arm is connected to said step member at an end opposite its axis of rotation, and said motor drives said stepping member between a retracted position and said deployed position.

30. The retractable vehicle step assist of Claim 29, wherein said motor drives a worm gear that meshes with teeth formed on the outer diameter of said rotor.

31. The retractable vehicle step assist of Claim 29, wherein said motor comprises a linear actuator having a piston connected to said rotor.

32. The retractable vehicle step assist of Claim 1, wherein said stepping deck is moveable between a retracted position and a deployed position, and said stepping deck rests at least partially within a protective cover when in said retracted position.

33. A retractable vehicle step assist for use with a vehicle having two adjacent doors through which persons may enter the vehicle, comprising:

- a rigid frame;

- a step member having a stepping deck; and

- at least two rigid arms connecting said step member to said frame and allowing said step member to move between a retracted position near said frame to a deployed position downward and away from said frame;

- wherein said stepping deck is of sufficient width to provide a step for persons desiring to enter either of said doors.

34. The retractable vehicle step assist of Claim 33, wherein said stepping deck is substantially wider than said frame.

35. The retractable vehicle step assist of Claim 33, wherein said stepping deck is substantially wider than said arms.

36. A retractable vehicle step assist for use with a vehicle having two adjacent doors through which persons may enter the vehicle, comprising:

- a rigid frame;

- a step member having a stepping deck; and

- at least two rigid arms connecting said step member to said frame and allowing said step member to move between a retracted position near said frame to a deployed position downward and away from said frame;

- wherein said stepping deck extends in front of each of said doors when in said deployed position.

37. The retractable vehicle step assist of Claim 36, wherein said stepping deck extends in front of about 1/4 of the width of each of said doors.

38. The retractable vehicle step assist of Claim 36, wherein said stepping deck extends in front of about 1/2 of the width of each of said doors.

39. The retractable vehicle step assist of Claim 36, wherein said stepping deck extends in front of substantially the entire width of each of said doors.

40. The retractable vehicle step assist of Claim 36, wherein said stepping deck is substantially wider than said frame.

41. A retractable vehicle step assist, comprising:

a rigid frame;

a step member having a stepping deck; and

at least two rigid arms connecting said step member to said frame and allowing said step member to move between a retracted position near said frame to a deployed position downward and away from said frame;

wherein said stepping deck is substantially wider than said frame.

42. The retractable vehicle step assist of Claim 41, wherein said stepping deck is about 2-8 times as wide as said frame.

43. A retractable vehicle step assist, comprising:

a rigid frame;

a step member having a stepping deck; and

a forward rigid arm and a rearward rigid arm connecting said step member to said frame and allowing said step member to move between a retracted position near said frame to a deployed position downward and away from said frame;

wherein said step member is pivotably connected to said rearward rigid arm at a rearward pivotable connection and said step member rotates downward about said rearward pivotable connection as said step member moves to said deployed position.

44. The retractable vehicle step assist of Claim 43, wherein said stepping deck is tilted upward in said retracted position.

45. The retractable vehicle step assist of Claim 43, wherein said stepping member further comprises a support bracket rigidly connected to said stepping deck and connected to said arms opposite said stepping deck, said support bracket being oriented at an angle to said stepping deck.

46. The retractable vehicle step assist of Claim 43, wherein said stepping deck rests at least partially within a protective cover when in said retracted position.

47. A retractable vehicle step assist, comprising:

a rigid frame;

a step member having a stepping deck; and

at least two rigid arms connecting said step member to said frame and allowing said step member to move between a retracted position near said frame to a deployed position downward and away from said frame;

wherein said stepping member further comprises a support bracket rigidly connected to said stepping deck and connected to said arms opposite said stepping deck, said support bracket being oriented at an angle to said stepping deck.

48. A method of improving access to a vehicle through a door of the vehicle, the method comprising:

attaching a rigid frame to the vehicle;

connecting a stepping member having a stepping deck to said frame via at least two rigid arms so that said stepping member is moveable between a retracted position near said frame to a deployed position wherein said stepping deck is situated along the side of the vehicle below the door;

wherein said stepping deck is substantially wider than said frame.

49. The method of Claim 48, wherein said stepping deck is substantially wider than said at least two rigid arms.